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Tentative Permit for Sacramento Regional Wastewater Treatment Plant

Requested Action: Endorse the Lead Scientist's comments on the SRWTP tentative permit and transmit the Council's action on this matter to the Regional Water Board.

Summary

The Central Valley Regional Water Quality Control Board issued a tentative wastewater discharge permit for the Sacramento Regional Wastewater Treatment Plant (SRWTP). Comments on the tentative permit were due October 8, 2010. The Delta Science Program Lead Scientist provided comments on the total ammonia limits in the permit in a memorandum to the Chair. The Chair forwarded those comments to the Regional Water Board with a commitment to bring this matter to the Council at today's meeting. A hearing on the tentative permit will be held by the Regional Water Board December 8-10, 2010.

Background

The SRWTP discharges treated municipal wastewater from the Sacramento region into the Sacramento River at Freeport. This is by far the largest such discharge by volume in the Delta and its watershed. This discharge is regulated by a permit issued by the Regional Water Board, which is charged with protection of the beneficial uses of the receiving water (Delta). The tentative permit includes a number of new discharge limits that will, if adopted by the Regional Water Board, require significant investment in treatment plant upgrades. The Regional Water Board has identified several major issues for this permit including dilution and mixing zones, disinfection, filtration, and ammonia removal. The Lead Scientist's comments address only total ammonia.

The Regional Water Board analysis in the tentative permit documents shows that the SRWTP discharges an average of about 14 tons of total ammonia per day. This makes up about 90 percent of the total ammonia in the Sacramento River immediately below the SRWTP outfall. Various studies have been conducted on the potential impacts of this ammonia discharge on the aquatic ecosystem covering the area from the SRWTP discharge point to Suisun Bay. The available research was reviewed and discussed at a 2009 Science Program workshop and at an "Ammonia Summit" workshop held by the Regional Water Board. Research is ongoing and is being disseminated through the IEP Contaminants Work Team, the Bay-Delta Science Conference and other avenues.

Based on the research to date, direct toxicity to fish does not appear to be likely at the observed ammonia concentrations but studies with copepods, an important food source for fish, indicate that toxicity may be occurring. The most significant impact of the ammonia discharge is likely on the algae at the base of the aquatic food web. There is

substantial evidence that ammonia inhibits the growth of diatoms in the Sacramento River below SRWTP and further downstream in Suisun Bay. There is also evidence linking ammonia to a shift in the composition of the algal community in the affected parts of the Delta. Diatoms, a high quality source of food for desirable zooplankton, have been largely replaced by less desirable flagellates and blue-green algae. The high nitrogen (ammonia and nitrate) to phosphorus ratio, a result of increasing ammonia and decreasing phosphorus discharges, may also be a contributing factor in the algal community shift. Ammonia has also been linked to blooms of toxic algae in the Delta.

Although there are still outstanding questions as to the details and magnitude of ammonia impacts on the Delta food web, there is substantial evidence that the SRTWP discharge is having a negative effect. Based on the best available science, the Regional Water Board's proposal to place limits on the total ammonia discharged by the SRWTP is justified. The Lead Scientist's memorandum and the comments summary in the form requested by the Regional Water Board are attached.

List of Attachments

Attachment 1 – Phil Isenberg Letter to Regional Water Quality Board attaching the Lead Scientist's Memorandum dated October 7, 2010
Attachment 2 – Summary Comments on the SRWTP

Contact

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Lead Scientist